

1E



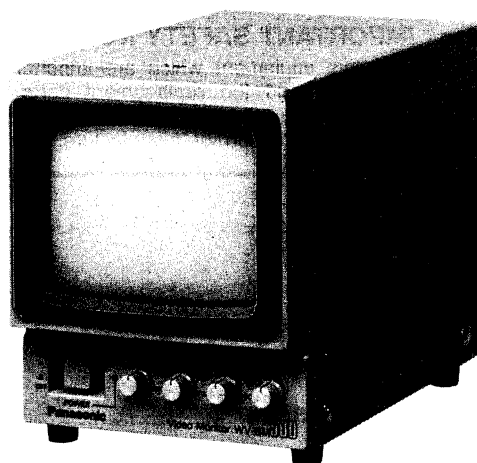
V01454

ORDER NO. AVS9406850C8

# Service Manual

## Video Monitor

### WV-BM500



#### SPECIFICATIONS

|                                 |                                                                             |
|---------------------------------|-----------------------------------------------------------------------------|
| Power Source :                  | WV-BM500/A, WV-BM500/B, WV-BM500/G: 220-240V AC50Hz                         |
| Power Consumption :             | Approx. 14W                                                                 |
| Tube Size :                     | 5" diagonal actual visual size                                              |
| Video Input Impedance :         | 75Ω or high impedance (Auto Termination)                                    |
| Video Input Level :             | 1.0 Vp-p composite (0.5 Vp-p - 2.0 Vp-p)                                    |
| Resolution :                    | More than 700 lines (Horizontal at center)                                  |
| Scanning Frequency :            | Horizontal : 15.625kHz<br>Vertical : 50Hz                                   |
| Sweep Linearity :               | Horizontal : Less than 5%<br>Vertical : Less than 5%                        |
| External Sync Input Impedance : | 75Ω or high impedance (Auto Termination)                                    |
| External Sync Input Level :     | 4.0 Vp-p negative (2.0 Vp-p - 5.0 Vp-p)                                     |
| Operating Ambient Temperature : | -10°C - +50°C (14°F - 122°F)                                                |
| Operating Ambient Humidity :    | Less than 90 %                                                              |
| Dimensions :                    | 147 (W) x 180 (H) x 245 (D) mm<br>[5-13/16" (W) x 7-1/16" (H) x 9-5/8" (D)] |
| Weight :                        | 2.3 kg [5.1 lbs]                                                            |

Weight and dimension indicated above are approximate.

Specifications are subject to change without notice.

#### OPTIONAL ACCESSORY

Rack Angle Bracket ..... WV-Q64

# Panasonic



**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN



CAUTION:  
TO REDUCE THE RISK OF ELECTRIC SHOCK,  
DO NOT REMOVE COVER (OR BACK). NO USER  
SERVICEABLE PARTS INSIDE.  
REFER SERVICEING TO QUALIFIED SERVICE  
PERSONNEL.



This symbol warns the user that uninsuland voltage within the unit may have suifficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.



This symbol alerts the user that impotant literature concerning the operation and maintenance of this has been included. Therefore, it should be read carefully in order to avoid any problems.

**IMPORTANT SAFETY NOTICE**

There are special components used in this equipment which are important for safety. These parts are indicated by the ⚠ mark on the schematic diagram and the replacement parts list. It is essential that these critical parts should be replced with manufacture's specilied parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacture.

C O N T E N T S

Major Operating Controls and Their Functions ..... 1

Circuit Description

    IC description ..... 2

Adjustment Procedure ..... 3

Appearance of IC, Transistor and Diode ..... 6

Location of Test Points and Adjusting Controls ..... 7

Block Diagram ..... 8

Schematic Diagram ..... 9

Conductor View ..... 10

Exploded View

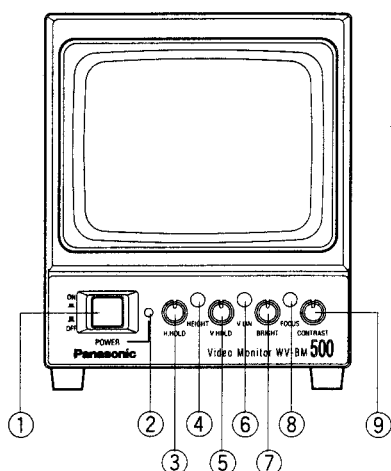
    WV-BM500 ..... 11

    WV-Q64 ..... 12

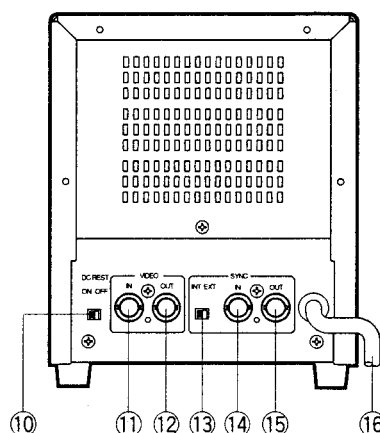
Replacement Parts List ..... 13

# MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS

&lt;Front View&gt;



&lt;Rear View&gt;



## 1. Power On/Off Switch (POWER, ON/OFF)

This is a push-push type switch which turns the power of this monitor on and off.

Press once and the switch remains down (—) for turning on the power of monitor.

Press again, the switch comes up (■) for turning off the power of the monitor.

## 2. Power Indicator (POWER)

By turning on the Power On/Off Switch (1), this indicator lights.

## 3. Horizontal Hold Control [H-HOLD]

This control is used to Lock in the picture horizontally.

## 4. Height Control [HEIGHT]

Adjust the vertical height of the picture.

## 5. Vertical Hold Control [V-HOLD]

This control is used to Lock in the picture vertically.

## 6. Vertical Linearity Control [V-LIN]

Adjust for vertical distortion of the picture.

## 7. Bright Control [BRIGHT]

Turn this control clockwise to increase the overall brightness.

## 8. Focus Control [FOCUS]

Adjust for the clearest picture.

## 9. Contrast Control [CONTRAST]

Turn this control clockwise to increase the picture contrast.

## 10. DC Restoration Switch [DC REST]

Switch to restore background of picture.

## 11. Video Input Connector (VIDEO IN)

This connector accepts the input video signal

## 12. Video Output Connector (VIDEO OUT)

The video input signal connected to the Video Input Connector (11) is looped through to this connector and terminated automatically.

## 13. Sync Selector Switch [SYNC INT/EXT]

## 14. Sync Input Connector [SYNC IN]

## 15. Sync Output Connector [SYNC OUT]

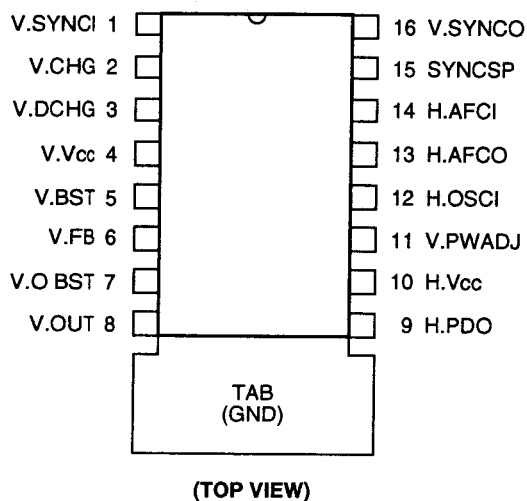
## 16. AC Power Cord

# CIRCUIT DESCRIPTION

## IC Description

1. IC401 on the Main Board is using the Deflection Control IC YWUPC1379C.

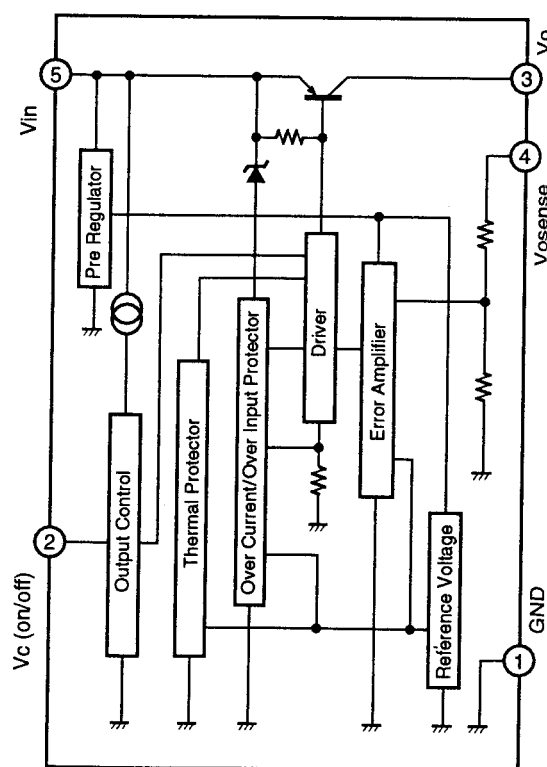
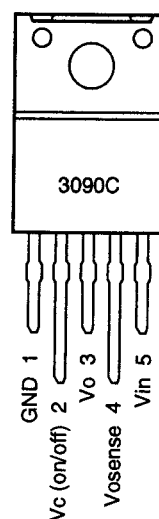
Description of this IC is as follows:



| Pin | Name    | I/O | Description                                      |
|-----|---------|-----|--------------------------------------------------|
| 1   | V.SYNCl | I   | Vertical Sync signal input terminal.             |
| 2   | V.CHG   | -   | Vertical Oscillation signal charge terminal.     |
| 3   | V.DCHG  | -   | Vertical Oscillation signal discharge terminal.  |
| 4   | V.Vcc   | -   | Power supply terminal for Vertical circuit.      |
| 5   | V.BST   | O   | Vertical voltage booster output terminal.        |
| 6   | V.FB    | -   | Vertical feedback terminal.                      |
| 7   | V.OBST  | -   | Vertical output voltage booster terminal.        |
| 8   | V.OUT   | O   | Vertical output terminal.                        |
| 9   | H.PDO   | O   | Horizontal pre-drive signal output terminal.     |
| 10  | H.Vcc   | -   | Power supply terminal for Horizontal circuit.    |
| 11  | V.PWADJ | -   | Vertical Scan Pulse Width Adjusting terminal.    |
| 12  | H.OSCI  | I   | Horizontal oscillation signal input terminal.    |
| 13  | H.AFCO  | O   | Horizontal AFC signal output terminal.           |
| 14  | H.AFCI  | I   | Horizontal AFC signal input terminal.            |
| 15  | SYNCSP  | I   | Sync Separation signal input terminal.           |
| 16  | V.SYNCO | O   | Vertical Sync Separation signal output terminal. |

2. IC1 on the Main Board is using the Regulator IC YWSI3090C.

Description of this IC is as follows:



# ADJUSTMENT PROCEDURE

## 1. Test Equipment Required

- The following test equipments are required for adjustment of the Video Monitor WV-BM500.
- Video Signal Generator (Mono-scope Pattern signal and Cross-hatch signal)
- Completely aligned Black and White Camera
- Frequency Counter
- Lighting (20 footcandles (200lux))
- Resolution Chart (Part No.: YWV1400RB99) as shown in Fig. 1-1.

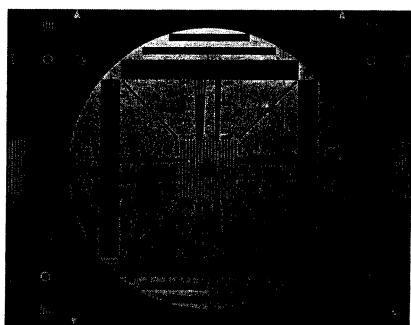


Fig. 1-1

## 2. Disassembling Procedure for Adjustment

- Referring to Fig. 2-1, remove six screws fixing the Upper Cover and remove the Upper Cover.

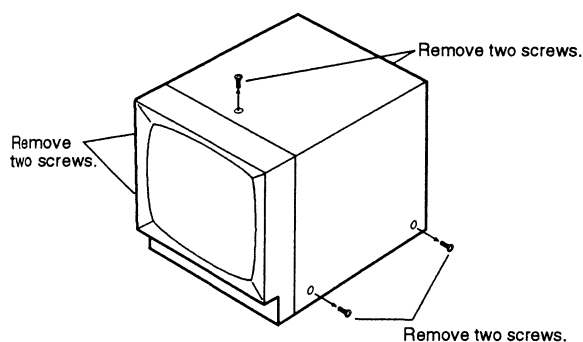


Fig. 2-1

## 3. Connection and Setting Up for Adjustment

### 3.1. Connection

- The Fig. 3-1 shows the connecting diagram for adjustment procedure of the WV-BM500 using the Video Camera.

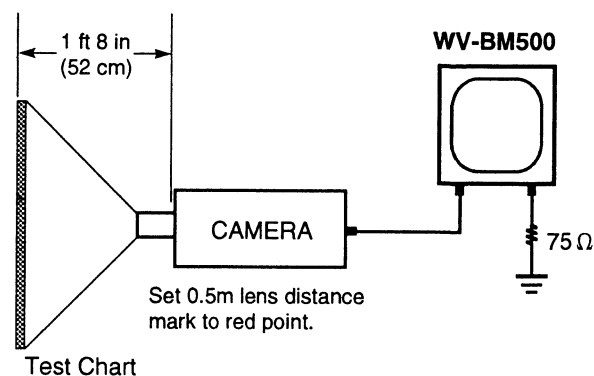


Fig. 3-1

- Connect the Video Output Connector of the Video Camera to the Video Input Connector of the WV-BM500 using the Coaxial Cable.
- Terminate the Video Output Connector of the WV-BM500 with 75Ω.
- The Fig. 3-2 shows the connecting diagram for adjustment procedure of the WV-BM500 using the Video Signal Generator.

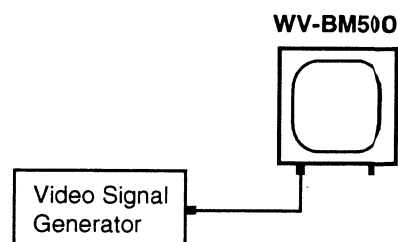


Fig. 3-2

- Connect the output Connector of the Video Signal Generator to the Video Input Connector of the WV-BM500 using the Coaxial Cable.
- Connect the probe of the Frequency Counter to desired Test Point in each adjustment step.

### 3.2. Setting Up

#### 3.2.1. Adjustment using the Video Camera

- Set the Resolution Chart in front of the Video Camera with 52cm distance.
- Set 0.5m distance mark to red point.
- Incident light intensity of 200 lux on the resolution Chart.

#### 3.2.2. Adjustment using the Video Signal Generator

- Set the Video Generator so that it provides the Mono-scope Pattern signal.

3.3. Initial Position of the Switches and Level Controls for Adjustment

|                       |                   |
|-----------------------|-------------------|
| DC REST SW (SW102)    | ON                |
| SYNC SW (SW101)       | INT               |
| CONTRAST (VR101)      | Mechanical Center |
| BRIGHT (VR102)        | Mechanical Center |
| V.HOLD (VR401)        | Mechanical Center |
| H.HOLD (VR402)        | Mechanical Center |
| SUB-BRIGHT VR (VR303) | Mechanical Center |
| SUB H.HOLD VR (VR405) | Mechanical Center |

- The adjustment should be done with this initial setting, unless otherwise specified.

4. Adjustment Procedure

- Refer to the Location of the Test Points and Adjusting Controls on page 7.

(1) Horizontal Hold and Vertical Hold Coarse Adjustment

|             |                      |              |
|-------------|----------------------|--------------|
| Test Point: | Video Monitor Screen |              |
| Adjust:     | VR303 (SUB BRIGHT)   | Socket Board |
|             | VR401 (V.HOLD)       | Main Board   |
|             | VR405 (SUB H.HOLD)   | Main Board   |

- Turn the CONTRAST Control to fully counterclockwise.
- Adjust VR303 so that the raster will just appear.
- Turn the CONTRAST Control to its mechanical center position.
- Adjust VR401 to hold picture vertically.
- Adjust VR405 to hold picture horizontally.

(2) Picture Tilt Adjustment

|             |                                                                |
|-------------|----------------------------------------------------------------|
| Test Point: | Video Monitor Screen                                           |
| Adjust:     | Deflection Coil                                                |
| •           | Loosen the Deflection Coil Holding Screw as shown in Fig. 4-1. |

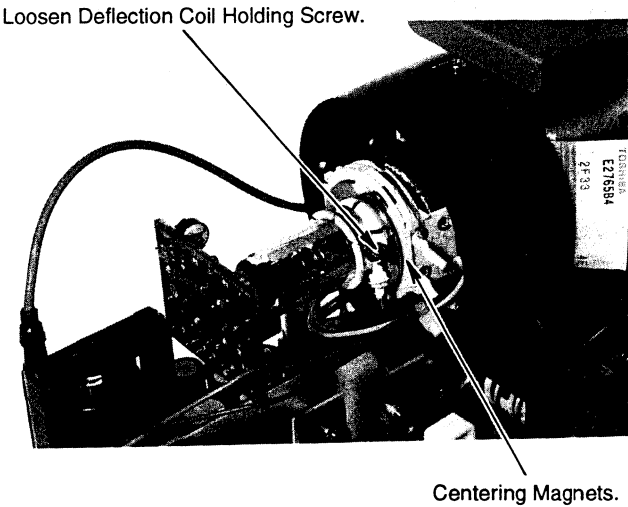


Fig. 4-1

- Turn the Deflection Coil until the raster becomes straight on the monitor screen.
- Tighten the Deflection Coil Holding Screw carefully.

(3) Centering and Horizontal Width Coarse Adjustment

|             |                      |            |
|-------------|----------------------|------------|
| Test Point: | Video Monitor Screen |            |
| Adjust:     | Centering Magnets    |            |
|             | L402 (H.WIDTH)       | Main Board |

- Adjust the Centering Magnets as shown in Fig. 4-1 until the raster becomes to the center of the monitor screen.
- Adjust L402 so that the full Horizontal Width becomes plus 5% overscanning.
- Repeat adjust the Centering Magnets and L402 until satisfactory.

(4) Vertical Width and Vertical Linearly Coarse Adjustment

|             |                      |            |
|-------------|----------------------|------------|
| Test Point: | Video Monitor Screen |            |
| Adjust:     | VR402 (V.HEIGHT)     | Main Board |
|             | VR403 (V.LIN)        | Main Board |
|             | Centering Magnets    |            |

- Adjust VR402 so that the full Vertical Width becomes plus 5% overscanning.
- Adjust VR403 so that the circle portion of the Mono-scope signal becomes nearly a true circle.
- Adjust the Centering Magnets so that the full Horizontal Width and the full Vertical Width becomes same overscanning rate.
- Repeat adjust VR402, VR403 and the Centering Magnets until satisfactory.

**Note:** If out of the vertical synchronizing during this adjustment, adjust VR401 (V.HOLD) to hold picture vertically.

**(5) Sub Brightness Adjustment****Test Point:** Video Monitor Screen**Adjust:** VR303 (SUB BRIGHT)      **Socket Board**

- Turn the CONTRAST Control to fully counterclockwise.
- Turn the BRIGHT Control to its mechanical center position.
- Turn VR303 to the clockwise direction to confirm the raster will appear, then adjust VR303 to the counterclockwise slowly so that the raster does not appear.
- After adjust, turn the CONTRAST Control to its mechanical center position.

**(6) Horizontal Hold Adjustment****Test Point:** Pin 1 of Deflection Coil**Adjust:** VR405 (SUB H.HOLD)      **Main Board**

- Disconnect the signal from the Video Signal Generator.
- Connect the Frequency Counter to the Red lead of the Deflection Coil.
- Adjust VR405 to obtain  $15,000 \pm 100$  Hz.

**Note:** Frequency adjustment should be done after 5 minutes warm-up of the WV-BM500.

**(7) Centering, Width and Vertical Linearly Adjustment****Test Point:** Video Monitor Screen**Adjust:** Centering MagnetsL402 (H.WIDTH)      **Main Board**VR402 (V.HEIGHT)      **Main Board**VR403 (V.LIN)      **Main Board**

- Supply Mono-scope signal from the Video Signal Generator to the Video Input Connector of the WV-BM500.
- Adjust the Centering Magnets and L402 so that the full Horizontal Width becomes plus  $6 \pm 1$  % overscanning.
- Adjust VR402 so that the full Vertical Width becomes plus  $5 \pm 2$  % overscanning, adjust VR403 so that the circle portion of the Mono-scope signal becomes nearly a true circle.
- Repeat adjust Centering Magnets, L402, VR402 and VR403 until satisfactory.
- After adjustment, supply the Cross-hatch signal from the Video Signal Generator to the Video Input Connector of the WV-BM500, then confirm that the Vertical Linearly becomes less than 5%.

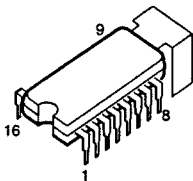
**Note:** This adjustment should be done the surface of the CRT is placed in the south direction.

**(8) Focus Adjustment****Test Point:** Video Monitor Screen**Adjust:** VR304 (FOCUS)      **Main Board**

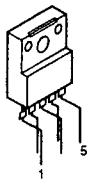
- Supply Mono-scope signal from the Video Signal Generator to the Video Input Connector of the WV-BM500.
- Adjust VR304 for best focus in the monitor screen.

# APPEARANCE OF IC, TRANSISTOR AND DIODE

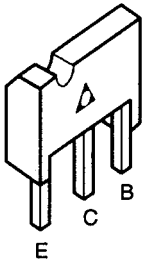
YWPC1379C



YWSI3090CA



2SB641-QRS  
2SC2206-BC  
2SD636-QRS



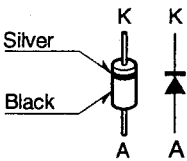
2SC1567-RS  
2SC2258



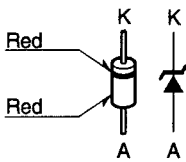
2SD1274B



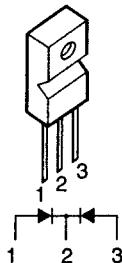
ES01FV0, EM01ZV0  
EU02ZV0



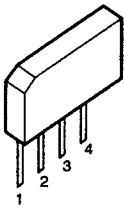
YWRD56FB3  
YWRD62FB2  
YWRD62FB1



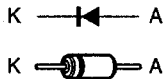
FMU21S



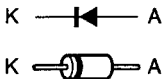
YWS35BA60



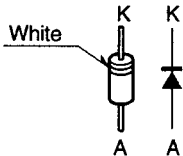
1N4148M



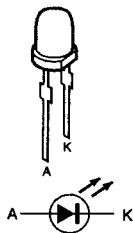
RU04ZLFT2



MA167

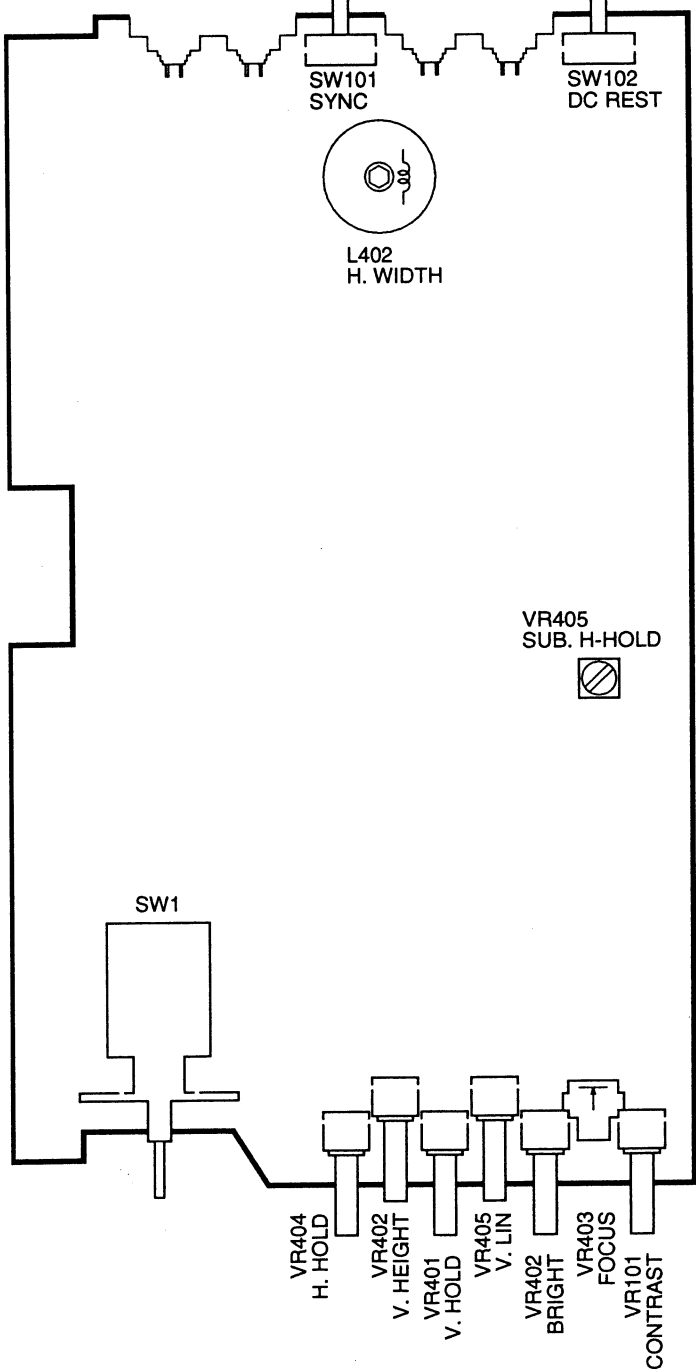


SEL2111R

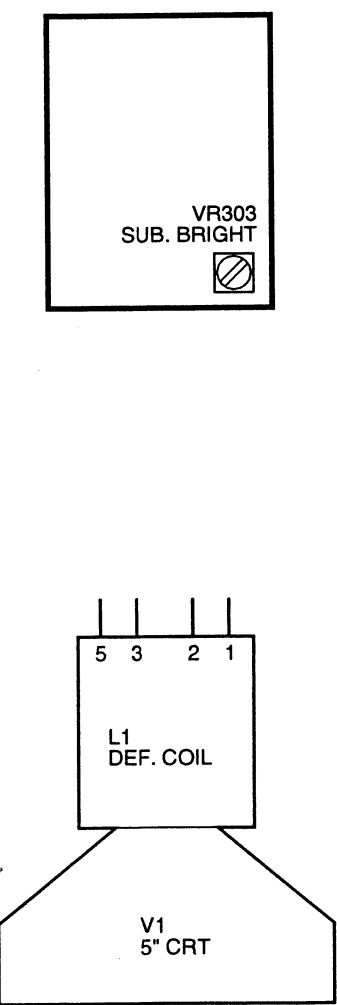


LOCATION OF TEST POINTS OF ADJUSTING CONTROLS

MAIN BOARD

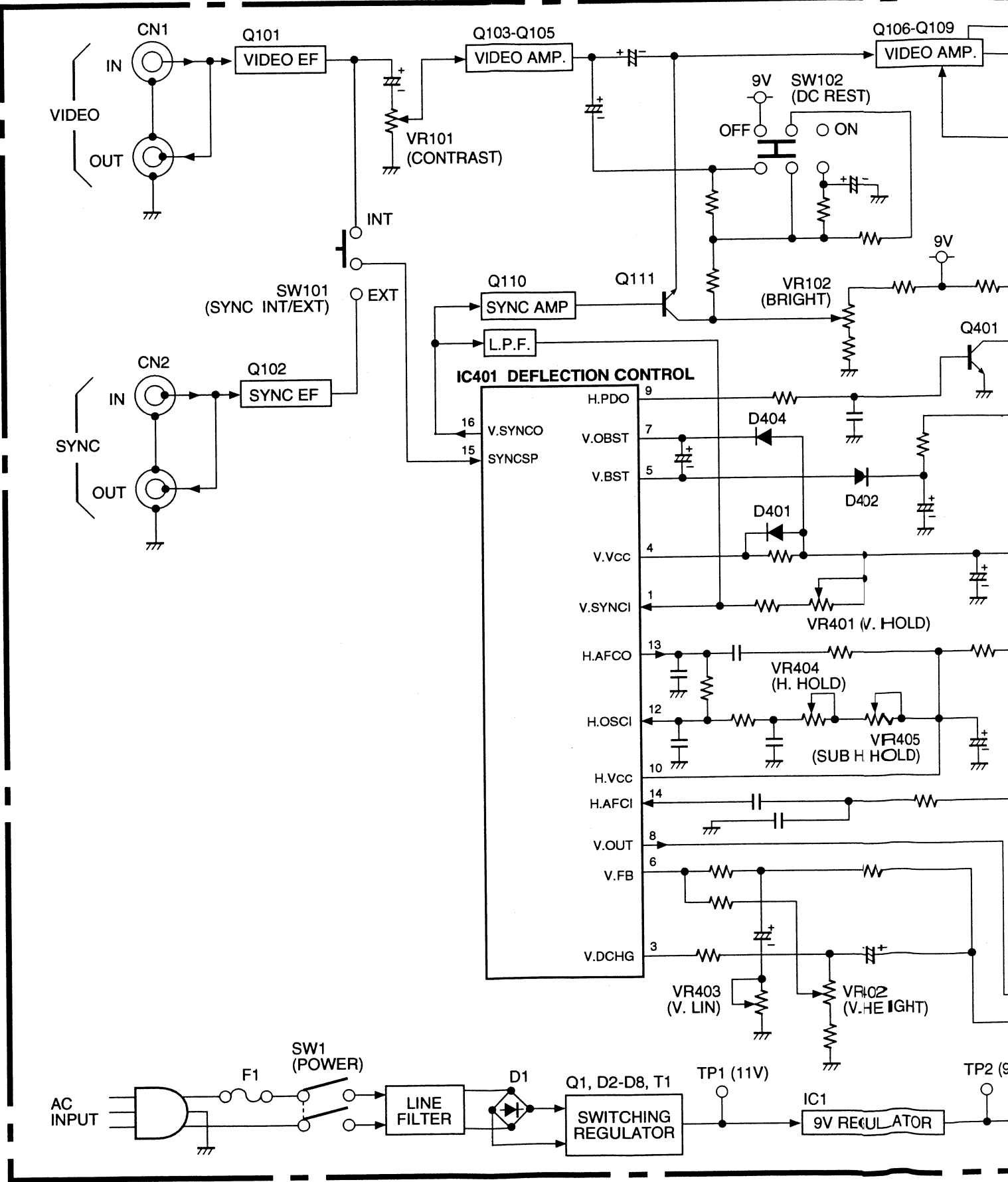


CRT SOCKET BOARD



BLOCK DIAGRAM

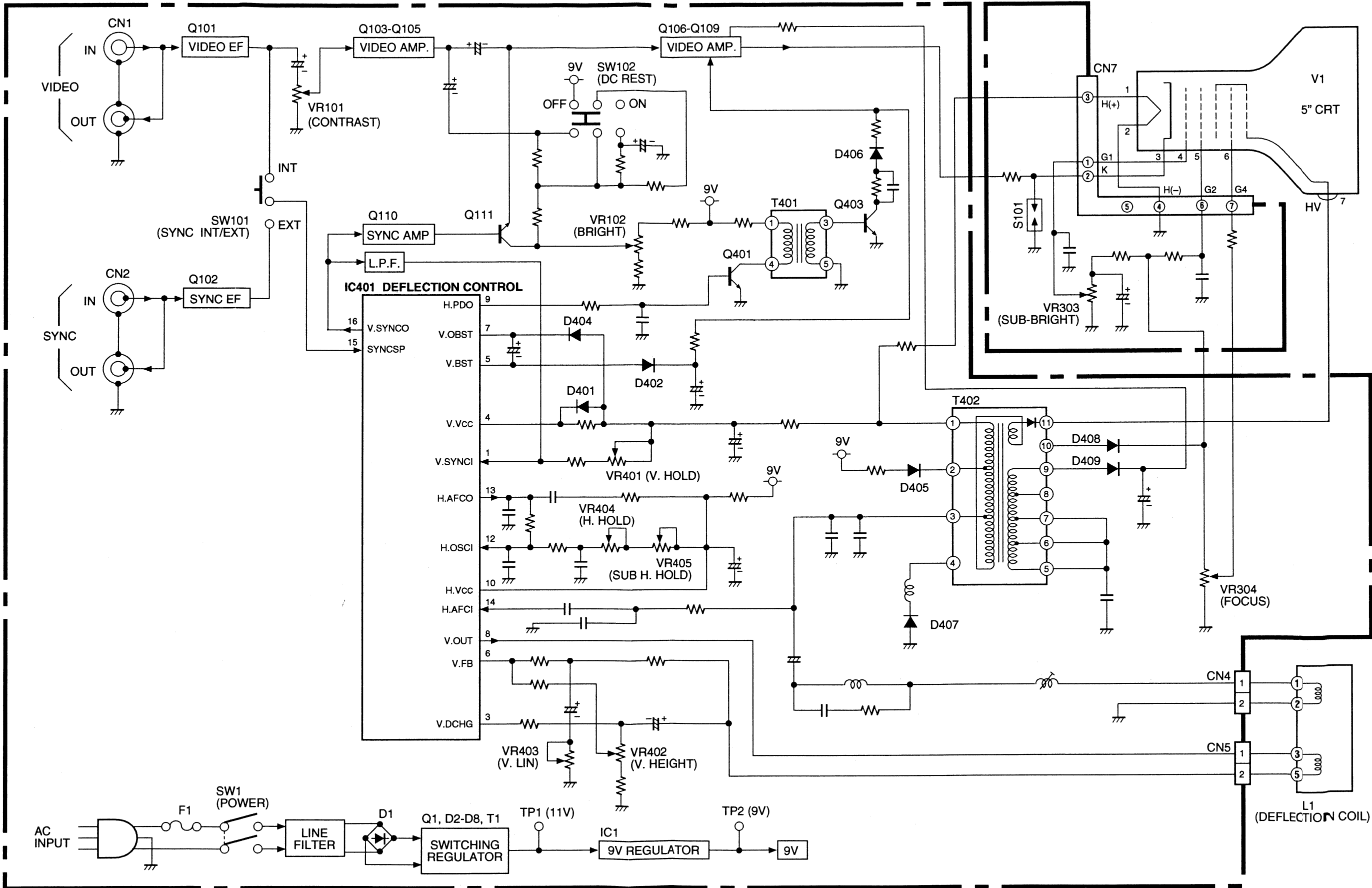
MAIN BOARD



# BLOCK DIAGRAM

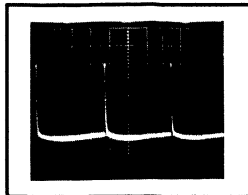
## MAIN BOARD

## CRT SOCKET BOARD

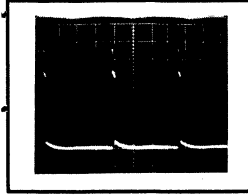


# SCHEMATIC DIAGRAM

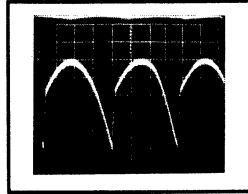
1.5 msec/DIV. 0.5V/DIV



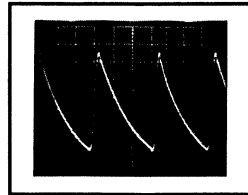
2.5 msec/DIV. 2V/DIV



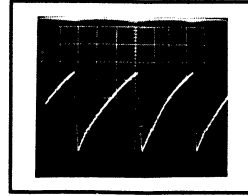
3.5 msec/DIV. 20mV/DIV



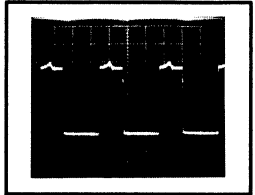
4.20 μsec/DIV. 0.2V/DIV



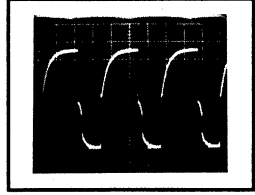
5.20 μsec/DIV. 0.5V/DIV



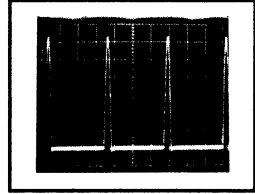
6.20 μsec/DIV. 0.2V/DIV



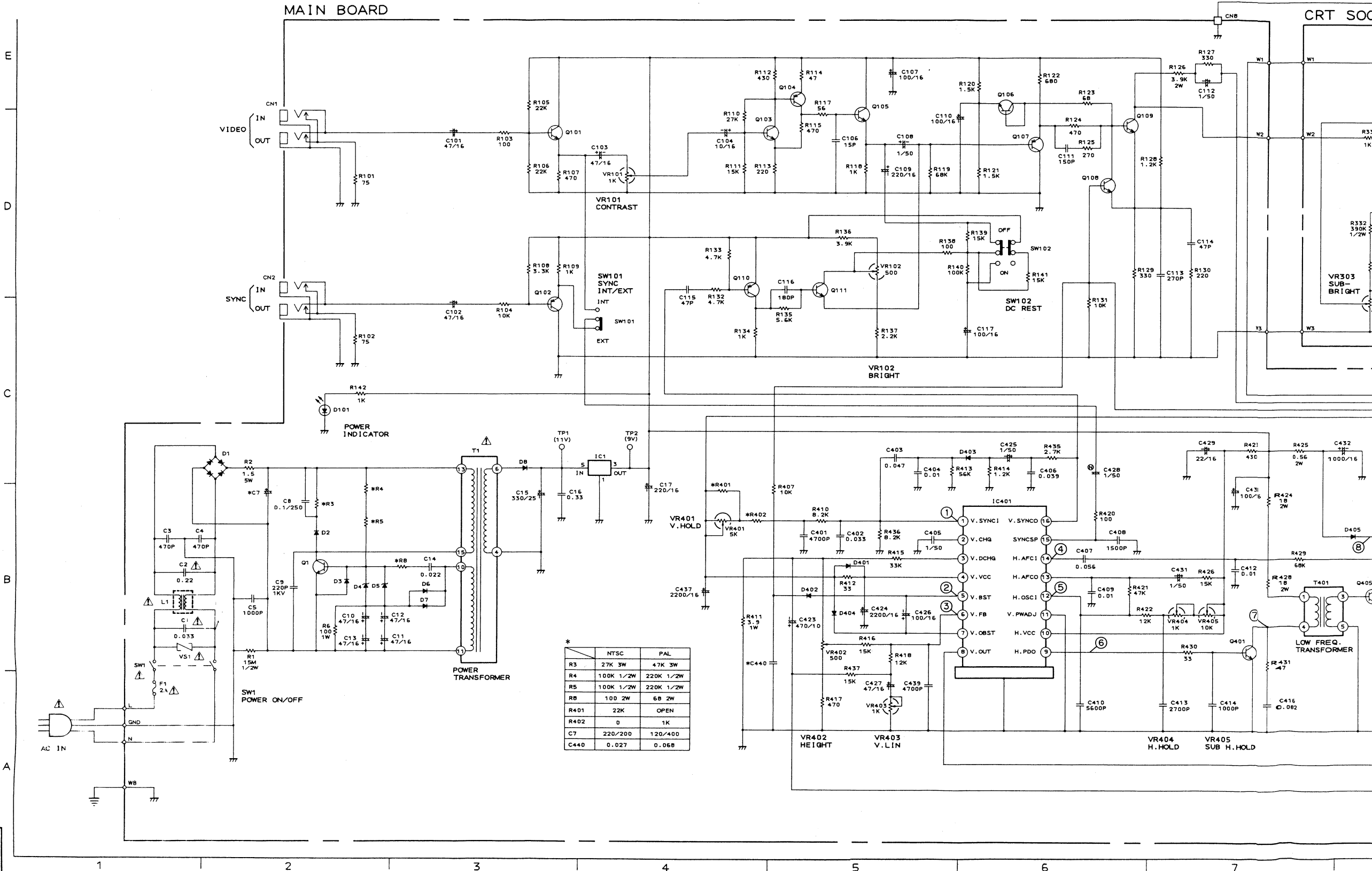
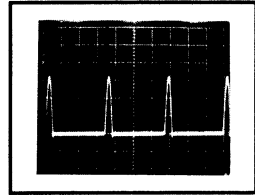
7.20 μsec/DIV. 2V/DIV



8.20 μsec/DIV. 10V/DIV



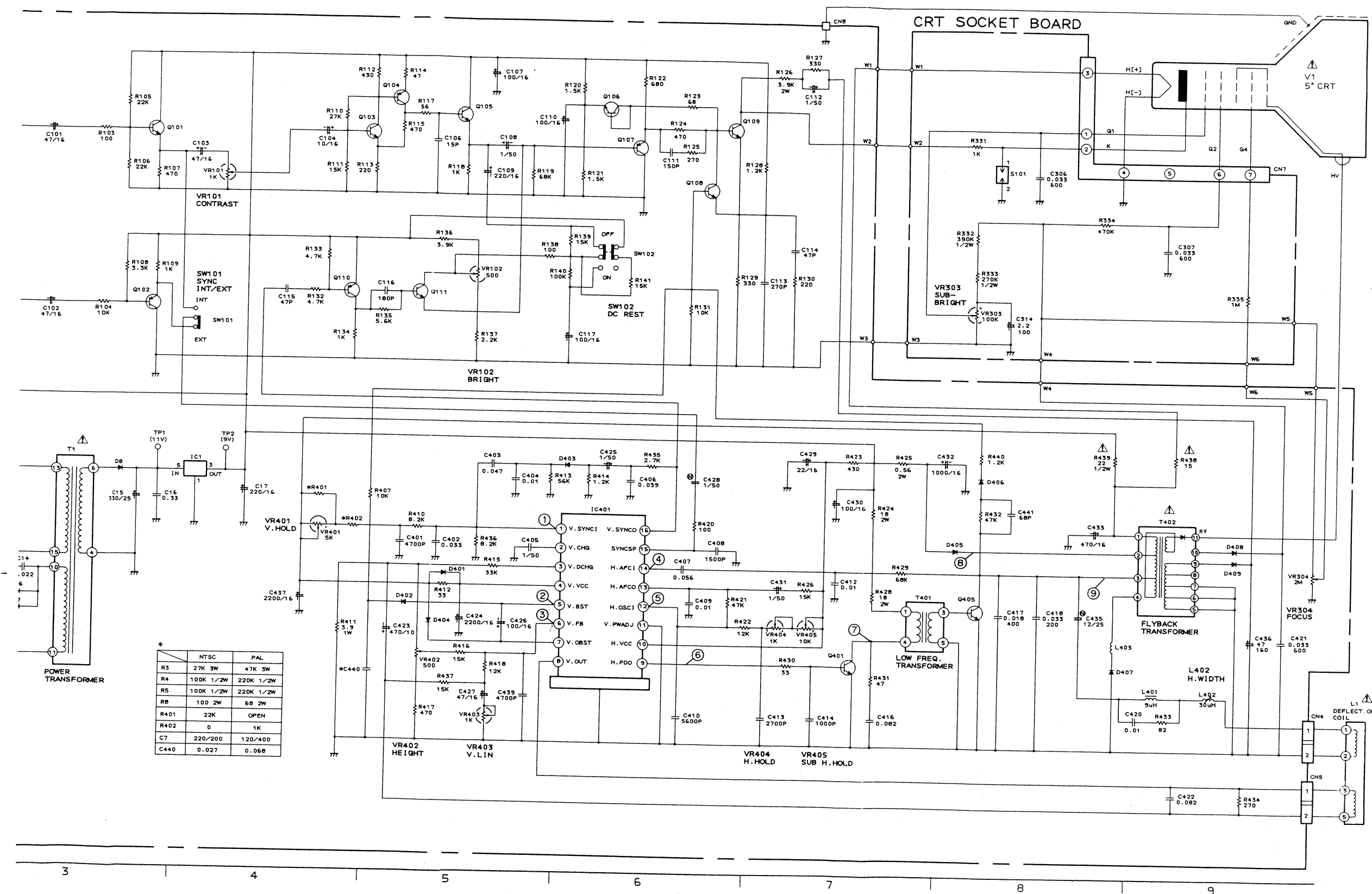
9.20 μsec/DIV. 50V/DIV



## PRODUCT SAFETY NOTICE

COMPONENT IDENTIFIED WITH THE "Δ" MARK HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN SERVICING ANY OF THESE COMPONENTS, IT IS ESSENTIAL THAT ONLY MANUFACTURE'S SPECIFIED PARTS BE USED.

## SCHEMATIC DIAGRAM



&lt;Index&gt;

MAIN BOARD

MAIN BOARD

IC1 C4

IC401 B6

Q1 B2

Q101 D3

Q102 C3

Q103 D4

Q104 E5

Q105 D5

Q106 E6

Q107 D6

Q108 D6

Q109 D6

Q110 D4

Q111 D5

Q401 B7

Q405 B8

D1 C2

D2 B2

D3 B2

D4 B2

D5 B2

D6 B3

D7 B3

D8 C3

D101 C2

D401 B5

D402 B5

D403 C6

D404 B5

D405 B8

D406 C8

D407 B8

D408 B9

D409 B9

|       | IC1  | IC401 |
|-------|------|-------|
| Pin 1 | 0    | 5.0   |
| 2     | 2.8  | 6.8   |
| 3     | 9.0  | 3.5   |
| 4     | 9.0  | 10.8  |
| 5     | 10.1 | 1.3   |
| 6     |      | 2.0   |
| 7     |      | 10.8  |
| 8     |      | 5.5   |
| 9     |      | 0.3   |
| 10    |      | 6.8   |
| 11    |      | 0     |
| 12    |      | 3.5   |
| 13    |      | 3.9   |
| 14    |      | 2.3   |
| 15    |      | 4.0   |
| 16    |      | 2.0   |

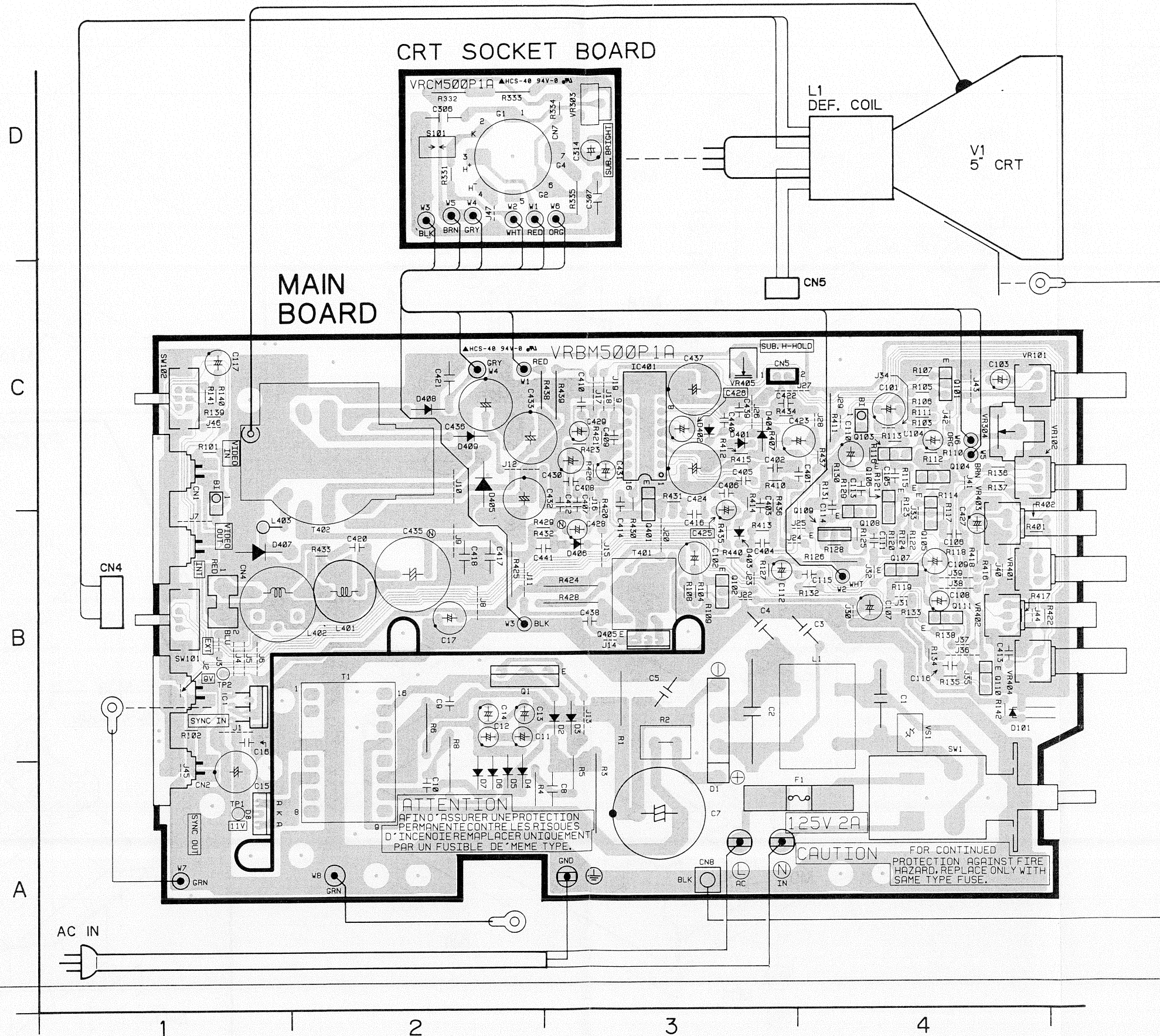
|     | B    | C    | E   |
|-----|------|------|-----|
| Q1  | -0.2 | 53.8 | 0   |
| 101 | 4.2  | 9.0  | 3.5 |
| 102 | 9.0  | 0    | 9.0 |
| 103 | 2.8  | 7.9  | 2.2 |
| 104 | 7.9  | 5.7  | 8.6 |
| 105 | 5.7  | 9.0  | 5.1 |
| 106 | 3.9  | 3.9  | 4.5 |
| 107 | 3.4  | 0    | 4.1 |
| 108 | 1.1  | 3.9  | 3.4 |
| 109 | 3.9  | 0.1  | 3.4 |
| 110 | 8.9  | 2.0  | 9.0 |
| 111 | 0.2  | 3.3  | 3.4 |
| 401 | 0.3  | 6.7  | 0   |
| 405 | 0    | 12.7 | 0   |

# CONDUCTOR VIEW

## <Index>

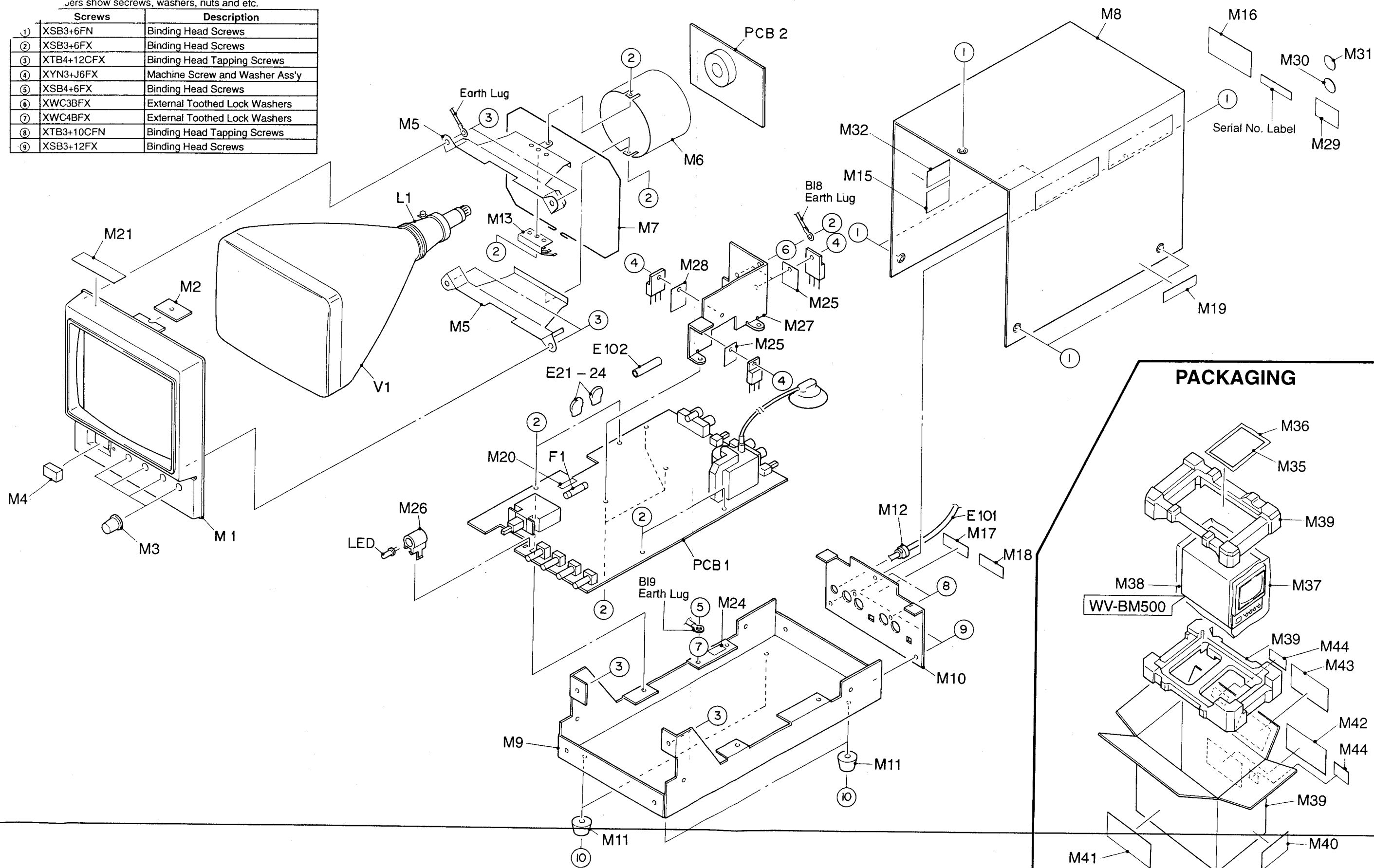
### MAIN BOARD

|       |    |
|-------|----|
| IC1   | B1 |
| IC401 | C3 |
| Q1    | B2 |
| Q101  | C4 |
| Q102  | B2 |
| Q103  | C4 |
| Q104  | C4 |
| Q105  | B4 |
| Q106  | B4 |
| Q107  | B4 |
| Q108  | B4 |
| Q109  | B4 |
| Q110  | B4 |
| Q111  | B4 |
| Q401  | C3 |
| Q405  | B3 |
| D1    | B3 |
| D2    | B3 |
| D3    | B3 |
| D4    | A2 |
| D5    | A2 |
| D6    | A2 |
| D7    | A2 |
| D8    | A1 |
| D101  | B4 |
| D401  | C3 |
| D402  | C3 |
| D403  | B3 |
| D404  | C3 |
| D405  | C2 |
| D406  | B3 |
| D407  | B1 |
| D408  | C2 |
| D409  | C2 |

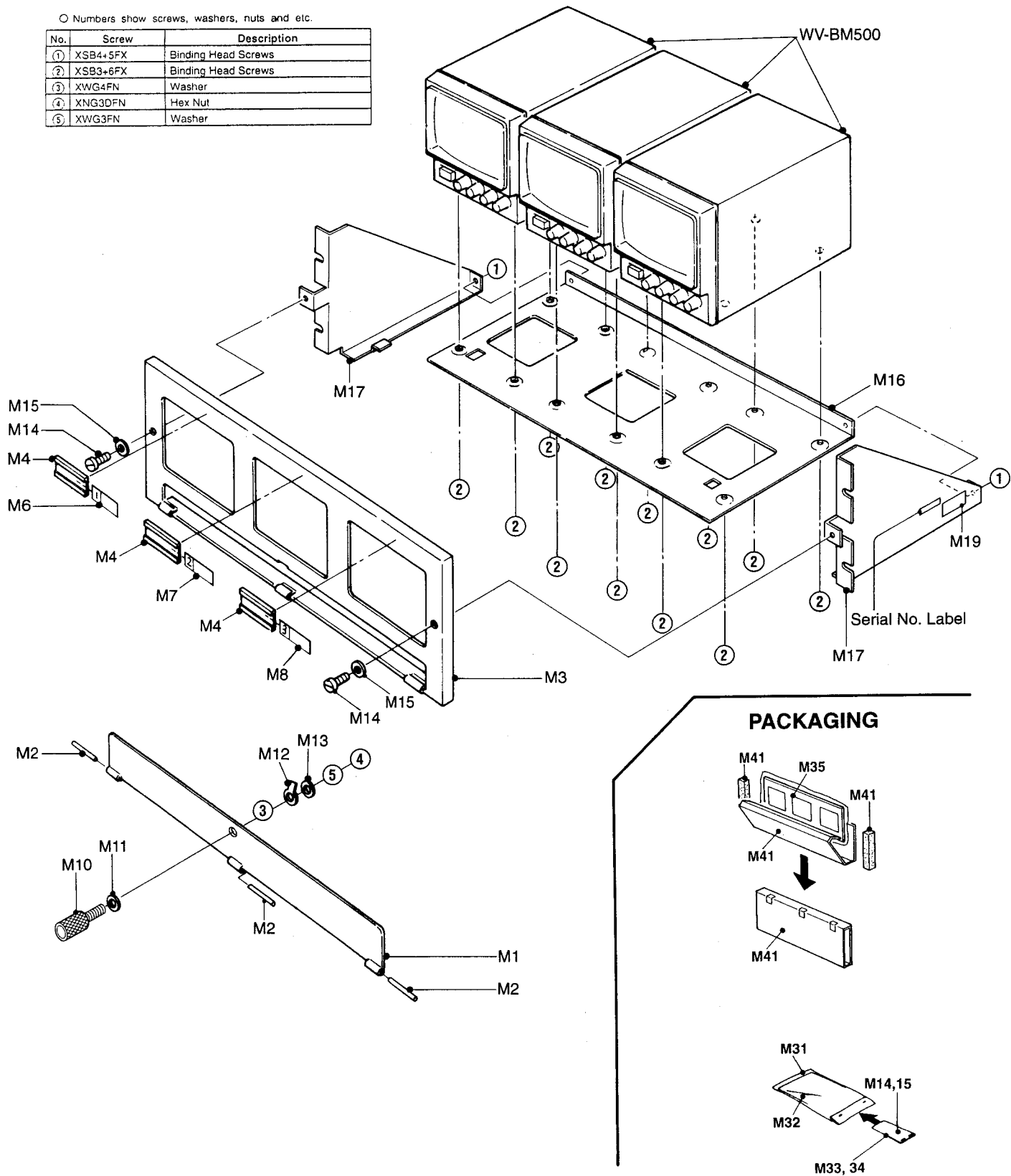


## EXPLODED VIEW (WV-BM500)

|   | Screws     | Description                    |
|---|------------|--------------------------------|
| ① | XSB3+6FN   | Binding Head Screws            |
| ② | XSB3+6FX   | Binding Head Screws            |
| ③ | XTB4+12CFX | Binding Head Tapping Screws    |
| ④ | XYN3+J6FX  | Machine Screw and Washer Ass'y |
| ⑤ | XSB4+6FX   | Binding Head Screws            |
| ⑥ | XWC3BFX    | External Toothed Lock Washers  |
| ⑦ | XWC4BFX    | External Toothed Lock Washers  |
| ⑧ | XTB3+10CFN | Binding Head Tapping Screws    |
| ⑨ | XSB3+12FX  | Binding Head Screws            |



EXPLODED VIEW (WV-Q64)



REPLACEMENT PARTS LIST

Important Notice

1. Components identified by "△" mark have special characteristics important for safety.  
When replacing any of these components, use only manufacturer's specified parts.
2. RTL : Retention Time Limited.

| REF.NO.                | PART NO.       | DESCRIPTION                                      | REF.NO.                                            | PART NO.       | DESCRIPTION                  |
|------------------------|----------------|--------------------------------------------------|----------------------------------------------------|----------------|------------------------------|
| VIDEO MONITOR WV-BM500 |                |                                                  | MAIN BOARD                                         |                |                              |
| MISCELLANEOUS          |                |                                                  | PCB1 (RTL) YWVKBM500E1A Printed Circuit Board Assy |                |                              |
| V1                     | △ YWE2765B4    | Cathode Ray Tube                                 | IC1                                                | YWSI3090C      | IC                           |
| L1                     | △ YWMDM75202   | Deflection Coil                                  | IC401                                              | YWUPC1379C     | IC                           |
| E101                   | △ YWKPGTSA25-A | AC Power Cord for WV-BM500/A                     | Q1                                                 | 2SC4460-MN     | Transistor                   |
|                        | YWGTBS2R5D     | AC Power Cord for WV-BM500/B                     | Q101                                               | 2SD636-QRS     | Transistor                   |
|                        | YFVM030908B    | AC Power Cord for WV-BM500/G                     | Q102                                               | 2SB641-QR      | Transistor                   |
| E102                   | YFCD20ACCAP    | Insulator Cap                                    | Q103                                               | 2SD636-QRS     | Transistor                   |
| BI101                  | YWM500CRT      | Wire Assy for Main Board CN8 and CRT Ground      | Q104                                               | 2SB641-QR      | Transistor                   |
| BI102                  | YWV202H        | Wire Assy for Deflection Coil and Main Board CN4 | Q105                                               | 2SD636-QRS     | Transistor                   |
| BI103                  | YWV202V        | Wire Assy for Deflection Coil and Main Board CN5 | Q106                                               | 2SC2206-BC     | Transistor                   |
|                        |                |                                                  | Q107                                               | 2SB641-QR      | Transistor                   |
| M1                     | YWV5BA0124A1   | Front Escutcheon                                 | Q108                                               | 2SD636-QRS     | Transistor                   |
| M2                     | YWV930-LM01    | Nut                                              | Q109                                               | 2SC2258        | Transistor                   |
| M3                     | YWTBX4C0014    | Knob                                             | Q110                                               | 2SB641-QR      | Transistor                   |
| M4                     | YWV5RC0306A4   | Power Switch Knob                                | Q111                                               | 2SD636-QRS     | Transistor                   |
| M5                     | YWV2SA2671B3   | Mounting Angle                                   | Q401                                               | 2SC1567-R5     | Transistor                   |
| M6                     | YWV2HA1178B3   | Shield Parts                                     | Q405                                               | 2SD1274B       | Transistor                   |
| M7                     | YWV5200WM01    | CRT Spring                                       | D1                                                 | YWD3SBA60      | Rectifier                    |
| M8                     | YWV5EA1353A1   | Upper Cover                                      | D2                                                 | ES01F          | Diode                        |
| M9                     | YWV2KA0895A1   | Chassis                                          | D3                                                 | EU02ZV0        | Diode                        |
| M10                    | YWV5WA1599A2   | Rear Panel                                       | D4                                                 | YWRD5.6FB2     | Diode                        |
| M11                    | YWS-WB01       | Rubber Foot                                      | D5                                                 | YWRD6.2FB1     | Diode                        |
| M12                    | YWSR6W1        | Cord Clamp                                       | D6,7                                               | EU02ZV0        | Diode                        |
| M13                    | YWV4JA0482A3   | Earth Spring                                     | D8                                                 | YWFMU215       | Diode                        |
| M15                    | YWV7MA0167A4   | Safety Label                                     | D101                                               | YWSEL2111R     | LED                          |
| M16                    | △ YWV7QA3285A4 | Main Label for WV-BM500/A                        | D401-403                                           | MA165          | Diode                        |
|                        | YWV7QA3286A4   | Main Label for WV-BM500/B                        |                                                    |                |                              |
|                        | YWV7QA3277A4   | Main Label for WV-BM500/G                        |                                                    |                |                              |
| M17                    | YWV7MA0081A4   | Safety Label for WV-BM500/G                      |                                                    |                |                              |
| M18                    | YWV7MA0015A4   | Safety Label for WV-BM500/G                      |                                                    |                |                              |
| M19                    | YFV7MB0099A4   | Safety Label                                     | D404                                               | EM01Z          | Diode                        |
| M20                    | YWV7MA0453A4   | Fuse Label                                       | D405                                               | YWRU4AMLFT2    | Diode                        |
| M21                    | YWS-XEGR803A   | Safety Label for WV-BM500/G                      | D406                                               | MA167          | Diode                        |
| M24                    | YWA7SA0689A4   | Earth Mark Label                                 | D407                                               | YWRU4AMLFT2    | Diode                        |
| M29                    | YFV7MA0210A4   | Safety Label for WV-BM500/B                      | D408,409                                           | ES01F          | Diode                        |
| M30                    | YWVDEMLABEL    | Label for WV-BM500/G                             |                                                    |                |                              |
| M31                    | YWV7MA0261A4   | Safety Label for WV-BM500/G                      | VS1                                                | △ ERZC07DK471U | ZNR                          |
| M32                    | YWV7MA0444A4   | Safety Label for WV-BM500/G                      | R1                                                 | △ ERC12ZGM156  | Solid Resistor 15M ohms 1/2W |
|                        |                |                                                  | R2                                                 | ERF5TK1R5      | Wire Wound 75 ohms 5W        |
|                        |                |                                                  | R3                                                 | ERG3SJ473      | Metal 47K ohms               |
|                        |                |                                                  | R4,5                                               | ERD25FJ224     | Carbon 220K ohm              |
|                        |                |                                                  | R6                                                 | ERG1SJ101      | Metal 100 ohms 1W            |
|                        |                |                                                  | R8                                                 | ERG2SJ680      | Metal 68 ohms 2W             |
|                        |                |                                                  | R101,102                                           | ERDS2TJ750     | Carbon 75 ohms 1/4W          |
|                        |                |                                                  | R103                                               | ERDS2TJ101     | Carbon 100 ohms 1/4W         |
|                        |                |                                                  | R104                                               | ERDS2TJ103     | Carbon 10K ohms 1/4W         |
|                        |                |                                                  | R105,106                                           | ERDS2TJ223     | Carbon 22K ohms 1/4W         |
|                        |                |                                                  | R107                                               | ERDS2TJ471     | Carbon 470 ohms 1/4W         |
|                        |                |                                                  | R108                                               | ERDS2TJ332     | Carbon 3.3K ohms 1/4W        |
|                        |                |                                                  | R109                                               | ERDS2TJ102     | Carbon 1K ohms 1/4W          |
|                        |                |                                                  | R110                                               | ERDS2TJ273     | Carbon 27K ohms 1/4W         |

| REF.NO.  | PART NO.     | DESCRIPTION            | REF.NO.       | PART NO.     | DESCRIPTION                   | REF.NO.       | PART NO.     | DESCRIPTION                                         | REF.NO. | PART NO.     | DESCRIPTION                                         |
|----------|--------------|------------------------|---------------|--------------|-------------------------------|---------------|--------------|-----------------------------------------------------|---------|--------------|-----------------------------------------------------|
| R111     | ERDS2TJ153   | Carbon 15K ohms 1/14W  | R436          | ER0S2CKF8201 | Metal 8.2K ohms 1/4W          | C421          | ECQE6333KZ   | Plastic 0.033 $\mu$ F                               | BI7     | YWM500W6     | Wire Assy for Main Board W6 and CRT Socket Board W6 |
| R112     | ERDS2TJ431   | Carbon 430 ohms 1/14W  | R437          | ERDS2TJ153   | Carbon 15K ohms 1/14W         | C422          | ECQB1H823JZ  | Plastic 0.082 $\mu$ F 50V                           | BI8     | YWM500W7     | Wire Assy for Main Board W7 and Heat-sink           |
| R113     | ERDS2TJ221   | Carbon 220 ohms 1/14W  | R438 $\Delta$ | ERD2FCG150   | Fuse Resistor 15 ohms 2W      | C423          | ECEA1AGE471  | Electrolytic 470 $\mu$ F 10V                        | BI9     | YWM500W8     | Wire Assy for Main Board W8 and Chassis             |
| R114     | ERDS2TJ470   | Carbon 47 ohms 1/14W   | R439 $\Delta$ | ERQ12AJ220   | Fuse Resistor 22 ohms 1/2W    | C424          | ECEA1CGE222  | Electrolytic 2200 $\mu$ F 16V                       | M25     | YWAC-256     | Insulator                                           |
| R115     | ERDS2TJ471   | Carbon 470 ohms 1/14W  | R440          | ERDS2TJ122   | Carbon 1.2K ohms 1/14W        | C425          | ECEA1HGE010  | Electrolytic 1 $\mu$ F 50V                          | M26     | YVW2NA0463A3 | LED holder                                          |
| R117     | ERDS2TJ560   | Carbon 56 ohms 1/14W   | VR101         | EVUE20F25B13 | Variable Resistor 1K ohms     | C426          | ECEA1CGE101  | Electrolytic 100 $\mu$ F 16V                        | M27     | YVW7DA0381A2 | Heat Sink                                           |
| R118     | ERDS2TJ102   | Carbon 1K ohms 1/14W   | VR102         | EVUE20F25B52 | Variable Resistor 500 ohms    | C427          | ECEA1CGE470  | Electrolytic 47 $\mu$ F 16V                         | M28     | YWA7CA0042A4 | Sealing Packing                                     |
| R119     | ERDS2TJ683   | Carbon 68K ohms 1/14W  | VR304         | EVMJ6U10KB26 | Variable Resistor 2M ohms     | C428          | ECQV1H105JZ  | Plastic 1 $\mu$ F 50V                               |         |              |                                                     |
| R120,121 | ERDS2TJ152   | Carbon 1.5K ohms 1/14W | VR401         | EVUE20F25B53 | Variable Resistor K ohms      | C429          | ECEA1HGE220  | Electrolytic 22 $\mu$ F 50V                         |         |              |                                                     |
| R122     | ERDS2TJ681   | Carbon 680 ohms 1/14W  | VR402         | EVUE21H20B52 | Variable Resistor 500 ohms    | C430          | ECEA1CGE101  | Electrolytic 100 $\mu$ F 16V                        |         |              |                                                     |
| R123     | ERDS2TJ680   | Carbon 68 ohms 1/14W   | VR403         | EVUE21H20B13 | Variable Resistor 1K ohms     | C431          | ECEA1HGE010  | Electrolytic 1 $\mu$ F 50V                          |         |              |                                                     |
| R124     | ERDS2TJ471   | Carbon 470 ohms 1/14W  | VR404         | EVUE20F25B13 | Variable Resistor 1K ohms     | C432          | ECEA1CGE102  | Electrolytic 1000 $\mu$ F 16V                       |         |              |                                                     |
| R125     | ERDS2TJ271   | Carbon 270 ohms 1/14W  | VR405         | EVND8AA03B14 | Variable Resistor 10K ohms    | C433          | ECA1CFZ471   | Electrolytic 470 $\mu$ F 16V                        |         |              |                                                     |
| R126     | ERG2SJ392    | Metal 3.9K ohms 2W     | C1 $\Delta$   | ECQU2A333MN  | Plastic 0.033 $\mu$ F 125V    | C435          | ECEA1EW120Z  | Electrolytic 12 $\mu$ F 25V                         |         |              |                                                     |
| R127     | ERDS2TJ331   | Carbon 330 ohms 1/14W  | C2 $\Delta$   | ECQU2A224KN  | Plastic 0.22 $\mu$ F 125V     | C436          | ECEA2CGE470  | Electrolytic 47 $\mu$ F 160V                        |         |              |                                                     |
| R128     | ERDS2TJ122   | Carbon 1.2K ohms 1/14W | C3,4          | ECKDWS471KB  | Ceramic 470 pF                | C437          | ECEA1CGE222  | Electrolytic 2200 $\mu$ F 16V                       |         |              |                                                     |
| R129     | ERDS2TJ331   | Carbon 330 ohms 1/14W  | C5            | ECKDWS102ME  | Ceramic 1000 pF               | C439          | ECQB1H472JZ  | Plastic 4700 pF 50V                                 |         |              |                                                     |
| R130     | ERDS2TJ221   | Carbon 220 ohms 1/14W  | C7            | EC0S2DA221BB | Electrolytic 220 $\mu$ F 200V | C440          | ECQB1H683JZ  | Plastic 0.068 $\mu$ F 50V                           |         |              |                                                     |
| R131     | ERDS2TJ103   | Carbon 10K ohms 1/14W  | C8            | ECQE2104KS   | Plastic 0.1 $\mu$ F 200V      | C441          | ECCF2H680J   | Ceramic 68 pF                                       |         |              |                                                     |
| R132,133 | ERDS2TJ472   | Carbon 4.7K ohms 1/14W | C9            | ECKD3A221KBN | Ceramic 220 pF 1KV            | L1 $\Delta$   | ELF18D450    | Coil                                                |         |              |                                                     |
| R134     | ERDS2TJ102   | Carbon 1K ohms 1/14W   | C10-13        | ECEA1CGE470  | Electrolytic 47 $\mu$ F 16V   | L401          | ELH5L433     | Coil                                                |         |              |                                                     |
| R135     | ERDS2TJ562   | Carbon 5.6K ohms 1/14W | C14           | ECQP1H223GZ  | Plastic 0.022 $\mu$ F 50V     | L402 $\Delta$ | ELH16F781    | Coil                                                |         |              |                                                     |
| R136     | ERDS2TJ392   | Carbon 3.9K ohms 1/14W | C15           | ECA1EFZ331L  | Electrolytic 330 $\mu$ F 25V  | L403          | YWBLO2RN1R62 | Filter                                              |         |              |                                                     |
| R137     | ERDS2TJ222   | Carbon 2.2K ohms 1/14W | C16           | ECQV1H334JZ  | Plastic 0.33 $\mu$ F 50V      | CF403         | YWBLO2RN1R62 | Filter                                              |         |              |                                                     |
| R138     | ERDS2TJ101   | Carbon 100 ohms 1/14W  | C17           | ECEA1CGE221  | Electrolytic 220 $\mu$ F 16V  | T1            | ETS29AB1D6NC | Power Transformer                                   |         |              |                                                     |
| R139     | ERDS2TJ153   | Carbon 15K ohms 1/14W  | C101-103      | ECEA1CGE470  | Electrolytic 47 $\mu$ F 16V   | T401          | TLH3412K     | Low Freq Transformer                                |         |              |                                                     |
| R140     | ERDS2TJ104   | Carbon 100K ohms 1/14W | C104          | ECEA1HGE100  | Electrolytic 10 $\mu$ F 50V   | T402 $\Delta$ | ETF30L42BY   | Flyback Transformer                                 |         |              |                                                     |
| R141     | ERDS2TJ153   | Carbon 15K ohms 1/14W  | C106          | ECCF1H150JC  | Ceramic 15 pF 50V             | SW1 $\Delta$  | YWSDDF43     | Power Switch                                        |         |              |                                                     |
| R142     | ERDS2TJ102   | Carbon 1K ohms 1/14W   | C107          | ECEA1CGE101  | Electrolytic 100 $\mu$ F 16V  | SW101         | YWS5SF112S9N | Slide Switch                                        |         |              |                                                     |
| R407     | ERDS2TJ103   | Carbon 10K ohms 1/14W  | C108          | ECEA1HGE010  | Electrolytic 1 $\mu$ F 50V    | SW102         | YWS5SF122S9N | Slide Switch                                        |         |              |                                                     |
| R410     | ERDS2TJ822   | Carbon 8.2K ohms 1/14W | C109          | ECEA1CGE221  | Electrolytic 220 $\mu$ F 16V  | F1 $\Delta$   | XBA2C20ET0A  | Current Fuse 2A 250V                                |         |              |                                                     |
| R411     | ERX1SJ3R9    | Metal 3.9 ohms 1W      | C110          | ECEA1CGE101  | Electrolytic 100 $\mu$ F 16V  | CN1,2         | P2255        | BNC Connector                                       |         |              |                                                     |
| R412     | ERDS2TJ330   | Carbon 33 ohms 1/14W   | C111          | ECCF1H151JR  | Ceramic 150 pF 50V            | CN4           | YWRTB1.52P   | 2-pin Connector                                     |         |              |                                                     |
| R413     | ERDS2TJ563   | Carbon 56K ohms 1/14W  | C112          | ECEA1HGE010  | Electrolytic 1 $\mu$ F 50V    | CN5           | YWB2BEH      | 2-pin Connector                                     |         |              |                                                     |
| R414     | ERDS2TJ122   | Carbon 1.2K ohms 1/14W | C113          | ECCF1H271JC  | Ceramic 270 pF 50V            | CN8           | YWRTB1.51F   | 1-pin Connector                                     |         |              |                                                     |
| R415     | ER0S2CKF3302 | Metal 33K ohms 1/4W    | C114,115      | ECCF1H470JC  | Ceramic 47 pF 50V             | E16           | YWSK0279     | Fuse Holder                                         |         |              |                                                     |
| R416     | ERDS2TJ153   | Carbon 15K ohms 1/14W  | C116          | ECCF1H181JC  | Ceramic 180 pF 50V            | E17           | YWSK0280     | Holder                                              |         |              |                                                     |
| R417     | ERDS2TJ471   | Carbon 470 ohms 1/14W  | C117          | ECEA1CGE101  | Electrolytic 100 $\mu$ F 16V  | E18-20        | YWMT028      | Terminal                                            |         |              |                                                     |
| R418     | ERDS2TJ123   | Carbon 12K ohms 1/14W  | C401          | ECQB1H472JZ  | Plastic 4700 pF 50V           | E21-24        | YW851040     | Insulator                                           |         |              |                                                     |
| R420     | ERDS2TJ101   | Carbon 100 ohms 1/14W  | C402          | ECQB1H333JZ  | Plastic 0.033 $\mu$ F 50V     | E25           | YWM45D3      | Insulator                                           |         |              |                                                     |
| R421     | ERDS2TJ473   | Carbon 47K ohms 1/14W  | C403          | ECQB1H473JZ  | Plastic 0.047 $\mu$ F 50V     | TP1,2         | YW32BM7R5    | Test -Pin                                           |         |              |                                                     |
| R422     | ERDS2TJ123   | Carbon 12K ohms 1/14W  | C404          | ECQB1H103JZ  | Plastic 0.01 $\mu$ F 50V      | BI1           | YWM500B      | Wire Assy for Main Board BI1 and BI1                |         |              |                                                     |
| R423     | ERDS2TJ431   | Carbon 430 ohms 1/14W  | C405          | ECQV1H105JZ  | Plastic 1 $\mu$ F 50V         | BI2           | YWM500W1     | Wire Assy for Main Board W1 and CRT Socket Board W1 |         |              |                                                     |
| R424     | ERG2SJ180    | Metal 18 ohms 2W       | C406          | ECQB1H393JZ  | Plastic 0.039 $\mu$ F 50V     | BI3           | YWM500W2     | Wire Assy for Main Board W2 and CRT Socket Board W2 |         |              |                                                     |
| R425     | ERX2SJR56    | Metal 0.56 ohms 2W     | C407          | ECQB1H563JZ  | Plastic 0.056 $\mu$ F 50V     | BI4           | YWM500W3     | Wire Assy for Main Board W3 and CRT Socket Board W3 |         |              |                                                     |
| R426     | ERDS2TJ153   | Carbon 15K ohms 1/14W  | C408          | ECQB1H152JZ  | Plastic 1500 pF 50V           | BI5           | YVW202W4     | Wire Assy for Main Board W4 and CRT Socket Board W4 |         |              |                                                     |
| R428     | ERG2SJ180    | Metal 18 ohms 2W       | C409          | ECQB1H103JZ  | Plastic 0.01 $\mu$ F 50V      | BI6           | YWM500W5     | Wire Assy for Main Board W5 and CRT Socket Board W5 |         |              |                                                     |
| R429     | ERDS2TJ683   | Carbon 68K ohms 1/14W  | C410          | ECQB1H562JZ  | Plastic 5600 pF 50V           |               |              |                                                     |         |              |                                                     |
| R430     | ERDS2TJ330   | Carbon 33 ohms 1/14W   | C412          | ECQB1H103JZ  | Plastic 0.01 $\mu$ F 50V      |               |              |                                                     |         |              |                                                     |
| R431     | ERDS2TJ470   | Carbon 47 ohms 1/14W   | C413          | ECQB1H272JZ  | Plastic 2700 pF 50V           |               |              |                                                     |         |              |                                                     |
| R432     | ERDS2TJ473   | Carbon 47K ohms 1/14W  | C414          | ECKF1H102KB  | Ceramic 1000 pF 50V           |               |              |                                                     |         |              |                                                     |
| R433     | ERDS2TJ820   | Carbon 82 ohms 1/14W   | C416          | ECQB1H823JZ  | Plastic 0.082 $\mu$ F 50V     |               |              |                                                     |         |              |                                                     |
| R434     | ERDS2TJ271   | Carbon 270 ohms 1/14W  | C417          | ECQF4183JZ   | Plastic 0.018 $\mu$ F         |               |              |                                                     |         |              |                                                     |
| R435     | ERDS2TJ272   | Carbon 2.7K ohms 1/14W | C418          | ECQF2333KZ   | Plastic 0.033 $\mu$ F         |               |              |                                                     |         |              |                                                     |
|          |              |                        | C420          | ECQB1H103JZ  | Plastic 0.01 $\mu$ F 50V      |               |              |                                                     |         |              |                                                     |

| REF.NO.                  | PART NO.     | DESCRIPTION                       | REF.NO.                                | PART NO.     | DESCRIPTION                   |
|--------------------------|--------------|-----------------------------------|----------------------------------------|--------------|-------------------------------|
| <b>RACK MOUNT WV-Q64</b> |              |                                   | <b>ACCESSORY PARTS/PACKAGING PARTS</b> |              |                               |
| <b>MISCELLANEOUS</b>     |              |                                   | M31                                    | YWV8QA3256AN | Operating Instructions        |
| M1                       | YWV5WA1608A0 | Operation Panel                   | M32                                    | XZB26X40C05  | Polyethylene Bag              |
| M2                       | YWV932-FM02  | Shaft                             | M33                                    | YWT10X10C03  | Polyethylene Bag              |
| M3                       | YWV5WA1643A4 | Rack Panel                        | M34                                    | YWT20X35C03  | Polyethylene Bag              |
| M4                       | YWV763PDR01V | Card Holder                       | M35                                    | YWT25X60X3   | Polyethylene Bag              |
| M6                       | YWV763PRB01  | Card-1                            | M41                                    | YWV9CA2297AN | Packaging Assy for Rack Mount |
| M7                       | YWV763PRB02  | Card-2                            |                                        |              |                               |
| M8                       | YWV763PRB03  | Card-3                            |                                        |              |                               |
| M10                      | YWV932-HM01A | Special Screw                     |                                        |              |                               |
| M11                      | YWV411-EB01  | Insulator Washer                  |                                        |              |                               |
| M12                      | YWV932-FM01  | Hold Plate                        |                                        |              |                               |
| M13                      | YWJ500PWB01A | Rubber Spring                     |                                        |              |                               |
| M14                      | YWL831-EM01A | Bolt                              |                                        |              |                               |
| M15                      | YWL1201ER01  | Washer                            |                                        |              |                               |
| M16                      | YWV2KA0107A2 | Main Chassis                      |                                        |              |                               |
| M17                      | YWV2KA0108A2 | Rack Mount Chassis for Left Side  |                                        |              |                               |
| M18                      | YWV2KA0109A2 | Rack Mount Chassis for Right Side |                                        |              |                               |
| M19                      | YWV7QA3258A4 | Main Label                        |                                        |              |                               |
| M20                      | YWV7QA2372A4 | System Label                      |                                        |              |                               |

